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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,725	12/28/2001	John DiDomenico	87354.2903	4065

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BAKER + HOSTETLER LLP
WASHINGTON SQUARE, SUITE 1100
1050 CONNECTICUT AVE. N.W.
WASHINGTON, DC 20036-5304

EXAMINER

KALIVODA, CHRISTOPHER M

ART UNIT PAPER NUMBER

2881

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,725

Applicant(s)

DIDOMENICO ET AL.

Examiner

Christopher M. Kalivoda

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-19, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2-19, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The substitute drawings filed on May 5, 2003 are approved and the previous drawing objections are withdrawn.

Specification

The proposed specifications changes are also approved and the previous specification objections are withdrawn.

Claim Rejections - 35 USC § 103

Examiner regrettably included a paragraph indicating allowable subject matter that should have been deleted. Accordingly, this office action is made non-final. Claims 1, 20 and 23 are cancelled per amendment received May 5, 2003 (paper no. 7). The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 6 - 8, 11-17, 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stedman, et al. U.S. Patent No. 5,498,872. Regarding amended and only independent claim 12 and claims 6, 19 and 21, Stedman, et al teach an optical system for gas component analysis comprising:

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- a. A first emitter located on a first side of a vehicle path for emitting a first light beam having a first spectrum across the vehicle path. This first emitter (claim 6) is an infrared emitter (see column 4, lines 8-13 and figure 1, ref signs 13 and 26);
- b. a first receiver for receiving the first light beam (see column 6, line 39-43 and figure 3, ref sign 35);
- c. a plurality of filter elements (see column 6, line 39-43 and figure 3, ref sign 37);
- d. a spinning mirror face that reflects the beam so that the beam reaches each of the filter elements in sequence (see column 6, line 24-29 and figure 3, ref sign 27).

However, the reference is specifically silent with respect to an ellipsoidal mirror (as in claim 12) or spherical mirror (as in claim 19) that receives the beam from the spinning mirror and directs the beam through the filters.

The gas component analysis system described by Stedman, et al. does use a mirror/reflective surface (see column figure 3)to focus the energy onto the detectors and ellipsoidal and spherical mirrors are well known in the art based.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Stedman, et al and incorporate ellipsoidal or spherical mirrors.

The motivation for this change would be to incorporate the well-known properties of an elliptical and spherical mirrors and these mirrors are very common and thus easily purchased/replaced.

Regarding claims 2 and 7, Stedman et al. teaches the system according to claim 12 and also a second emitter located on the first side of the vehicle path for emitting a second light beam at a second spectrum across the vehicle path (see column 4, lines 8-10 and figure 1, ref sign 12). In this case the second emitter emits UV light as in claim 7; and

a second receiver for receiving the second light beam (see figure 3, ref sign 44 and 51).

Regarding claim 8, the two beams, infrared and ultraviolet, are collimated into one beam and overlap each other (see column 4, lines 8-13 and figure 3, ref sign 15).

Regarding claim 11, the spinning mirror has a plurality of faces (see column 6, lines 24-27 and figure 3, ref sign 29).

Regarding claim 13, Stedman et al. describes a sensor assembly created to pass wavelengths indicative of the chemical species to be monitored. This infers that the filters are removable based on the species monitored (see column 6, line 39-50).

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Regarding claims 14 and 15, there are at least four filter elements and they are spaced at regular intervals (see fig 3, ref sign 37).

Regarding claims 16 and 17, Stedman, et al. teach the use of at least one gas cell positioned in the optical path along with the filter for calibration (see column 10, lines 7-10 and Figure 10). In addition, the cell could easily be used to replace the filter.

Regarding claim 18, Stedman, et al. show the mirror receiving the beam after the beam crosses the road. The mirror is located inside the detector denoted by reference sign 16 (see figure 1).

Claims 3-5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stedman et al. U.S. Patent No. 5,498,872 in view of DiDomenico, et al. U.S. Patent No. 6,307,201. Regarding claims 3, 9 and 10, Stedman, et al. teaches the limitations of claim 2 as described above. However, Stedman, et al. is silent with respect to a third emitter and receiver and overlapping beam paths.

DiDomenico, et al. describes remote sensing device for analysis of vehicle emissions using infrared radiation, ultraviolet radiation, visible radiation or a combination of the sources (see column 8, lines 1-5).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Stedman et al. to include a third emitter for emitting a third beam and third receiver for detecting the third beam and having a portion of the path overlap with that of the second beam.

One would be motivated for adding the third emitter and receiver in order to properly detect/measure emissions best detected by using visible light. Furthermore, by overlapping the beams, only one window is required.

Regarding claim 4, Stedman, et al teaches the limitations of claim 2 as described above. However, this reference is silent with respect to the first and second emitters and first and second receivers are located on one side of a vehicle path, and wherein the system comprises a reflector located at the other side of the vehicle path to direct the first and second beams from the first and second emitters to the first and second receivers respectively.

DiDomenico, et al. describe a similar system in which the emitters and receivers are both located on the same side of the street and incorporate a reflector on the opposite side of the street to direct the beams back to the detectors (see column 8, lines 30-35).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Stedman, et al. such that the first and second emitters and first and second receivers are located on one side of a vehicle path, and wherein the system comprises a reflector located at the other side of the vehicle path to direct the first and second beams from the first and second emitters to the first and second receivers respectively.

One would be motivated to make such a change to permit the detector and source to be housed in a single unit. This would ease setup, repair/replacement, and calibration of the equipment.

Regarding claim 5, Stedman, et al. in view of DiDomenico, et al. teaches the limitations of claim 4 as described above. However, this reference is silent with respect to the reflector constructed as a retroreflective assembly having at least three reflective faces and wherein at least one of the beams travels across the road at a first height above the road and returns across the road at a second height above the road different from the first height.

DiDomenico, et al. describe a system using a lateral transfer mirror assembly to reflect the source back along a path either laterally or horizontally if the reflector is orientated vertically (see column 8, lines 30-33).

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Stedman, et al. to incorporate a retroreflective assembly having at least three reflective faces and wherein at least one of the beams travels across the road at a first height above the road and returns across the road at a second height above the road different from the first height.

One would be motivated to make such a change in order to detect emissions from vehicles of different ground clearance such as an SUV or sports car.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,210, 702 to Bishop is describes an apparatus and method for remote analysis of vehicle emissions. It describes the many of the same features as those in U.S. Patent No. 5,498,872 to Stedman, et al but only briefly describes cells.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (703)-305-7443. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703)-308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9318 for regular communications and (703)-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

cmk
July 15, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800